

April 7, 1995

CD-95-05 (LDV/LDT)

SUBJECT: Guidance on Requirements Pertaining to the
Certification Short Test

Dear Manufacturer:

This letter was prompted by various manufacturers' requests for guidance on topics related to the Certification Short Test (CST) regulations. This guidance only addresses requirements for LDVs and LDTs subject to the CST regulations. Readers should be aware that the current CST regulations cover steady-state test procedures; if there is a question regarding the applicability of this guidance to transient loaded CST procedures that may be promulgated in the future, the reader should contact the Certification Division for more information.

Testing Four-Wheel Drive and Traction Control Vehicles

Full-time four-wheel drive vehicles and traction control vehicles cannot be tested on two-wheel drive dynamometers. Therefore, non-switchable vehicles subjected to confirmatory exhaust emissions testing have historically been tested with the transmission altered in such a way that they can be tested on a two-wheel drive dynamometer. The Agency approves the continued use of vehicles altered in this way for performing CST procedures on two-wheel drive dynamometers. However, EPA reserves the right to require confirmatory testing a vehicle in its four-wheel drive (or traction-control) configuration on a four-wheel drive speed-synchronized dynamometer, or CST procedures utilizing only idle modes.

Labeling Vehicles Granted Exemptions or Alternative Procedures

Some manufacturers have requested guidance regarding the labeling of full-time four-wheel drive and non-switchable traction control vehicles, since some inspection and maintenance programs are not equipped with four-wheel drive dynamometers. Performance warranty procedures that utilize loaded operation will not be appropriate for use at such stations. The Agency agrees that

clear labeling of such vehicles may help reduce the initiation of improper tests at stations having only two wheeldrivedynamometers.

In 40 CFR 86.1427(d), EPA states that the manufacturer may request an exemption from particular CST procedures that are not appropriate for testing a given engine family, or request an alternative test procedure. It further states that the emission control information label for any vehicle for which approval of such an exemption or alternative procedure has been granted must note such approval. Again, in 40 CFR 86.096-35(a), EPA states that for vehicles exempted from compliance with certain performance warranty procedures, the label must bear a statement indicating the specific test(s) which are not to be performed.

Since not all vehicles in an engine family that includes full-time four-wheel drive or traction control options will come equipped with such options, a single label for all vehicles in an engine family may be inappropriate. For engine families that include configurations having differing short test capabilities (regarding any exemption from performance warranty test requirements or any alternative procedures appropriate to that configuration), EPA will accept either of two approaches. One approach would be for a manufacturer to use an emission control information label for the configuration(s) in an engine family needing special short test treatment that differs from the "standard" label for those vehicles not requiring special treatment. Some manufacturers have indicated that they prefer to have an emission control information label that appears on all configurations in an engine family; for these, EPA will accept the use of two labels on a vehicle requiring special treatment: an engine family-wide label and a specific supplemental label bearing information related to specific testing exemptions or alternative procedures. A supplemental label must be placed as near to the emission control information label as possible.

As is required for the standard emission control information label, any supplemental label should provide the information in block letters and numerals not less than three thirty-seconds of an inch high and of a color that contrasts with the background of the label. An example of acceptable label text follows:

Loaded I/M testing of permanent four-wheel drive or traction control-equipped vehicles must be conducted on a four-wheel drive speed synchronized dynamometer. Otherwise, a non-loaded test procedure must be performed.

The emission control information label and supplemental label, if present, must be presented for approval in sample form in the application for certification. Manufacturers that have already issued labels or received EPA approval on labels for current engine families need not change their label text to align with the text suggested above.

Response Time Requirement

The Agency received a request to waive the requirement limiting analyzer response time (i.e., eight seconds to 90 percent of full scale for HC, CO, and CO₂ analyzers) for the purposes of performing the CST. The Agency has granted this request; however, the manufacturer may not adjust points at which mode times begin or end to compensate for response time that exceeds eight seconds.

Warm Temperature Testing

The Agency received a request to accept, for the manufacturer's certification data submittal, testing classified as being in EPA's warm temperature category that exceeds the 86°F to 96°F (30°C to 36°C) range specified in 40 CFR 86.1430. Since it agrees that exceeding this range constitutes a "worst case" condition, EPA will accept such testing, provided the manufacturer documents the actual temperature at which the testing was performed in its application for certification.

Multimode Transmissions

A manufacturer has requested that EPA allow the manufacturer to choose the shift mode setting during the CST performed on a multimode transmission vehicle for the manufacturer's certification data submittal. Since the shift mode selected affects operation while under load, but not idle operation, EPA has granted this request. The Agency does not believe that the mode selected for warmup or preconditioning will have a significant impact on idle test emissions. However, EPA reserves the right to perform its confirmatory testing in any shift mode, for any of the available CST procedures, unless the EPA has approved the manufacturer's request that testing not be performed in a particular mode on the grounds that it is not representative of typical use (similar to the exception allowed for fuel economy testing). Except for those cases, EPA expects test vehicles to

meet the applicable CST standards regardless of the shift mode in effect during testing.

Multiple Exhaust Pipes

In the CST regulations at 40 CFR 86.1438(d)(3), EPA stipulates that exhaust from vehicles equipped with multiple exhaust pipes must be sampled simultaneously. In 40 CFR 85.2255(b)(5), EPA stipulates that vehicles given performance warranty tests that have dual exhaust pipes must be tested with a dual sample probe. A manufacturer requested that when vehicles with dual exhaust are tested for the certification data submittal, a "Y" connector could be used to mix the two exhaust streams and a single probe would be inserted downstream of the union for emissions sampling. The Agency approves the use of such equipment so long as the flow rates of the two legs of the "Y" are approximately equal.

High Altitude CST Compliance

While the CST regulations in 40 CFR part 86, subpart O do not address high altitude testing, 40 CFR 86.096-8(g) and 40 CFR 86.094-9(g) state that light-duty vehicles must meet emission standards under both low altitude and high altitude conditions (except as provided under paragraphs (h) and (i) of those sections). The manufacturer need not supply test data with the application, but shall instead affirm that all vehicles in the engine family for which certification is sought are capable of compliance both at low altitude and at high altitude.

Reporting Emission Results

For each mode of the test performed, the concentrations of HC and CO must be reported for that five-second interval for which the numerical value of $[HC + (151 * CO)]$ is at a minimum. The values of HC and CO are derived from a running average of scores collected over five-second sampling intervals, as described in 40 CFR 86.1437(d)(1). The time assigned to a given five-second interval corresponds to the time of the last exhaust measurement in that interval.

Phase 2 Fuel

Some manufacturers have asked that EPA specify California's Phase 2 fuel for all certification and confirmatory testing, for both federal and California engine families. At this time, EPA has not decided to grant this request. If EPA decides to do so, CST

procedures will conform. However, until EPA announces a new policy addressing this issue, CSTs shall not be performed using Phase 2 fuel.

Sincerely,

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cc: Mitch Greenberg (MOD)
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